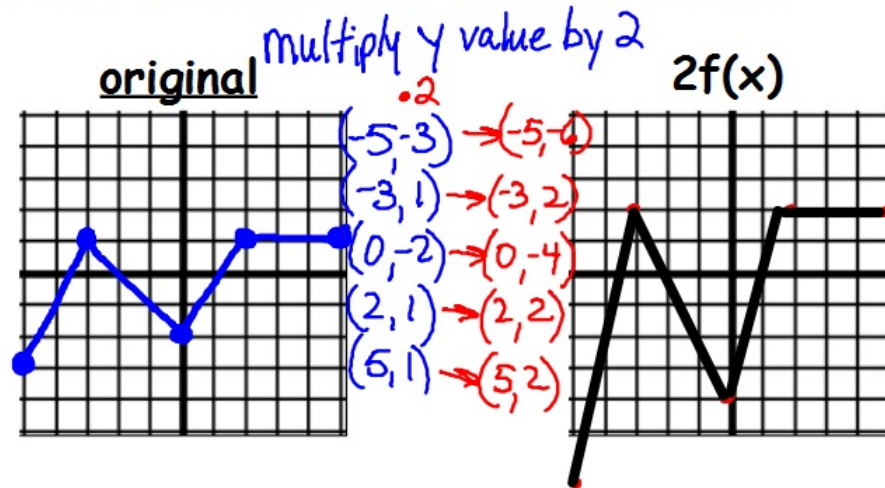


Bellwork: 10/19/12

Perform the indicated transformation:





$$y = a f(x-h) + k$$

↓  
+k → up  
increase the y value  
-k → down  
decrease the y value

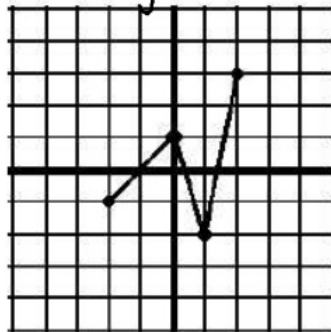
↙  
 $x-h \rightarrow h \oplus$   
right  
increase x value

$x+h \rightarrow h \ominus$   
left  
decrease x value

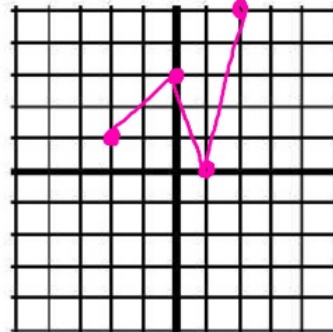
## Transformations (h and k only)

Using the given the graph, perform the following transformations.

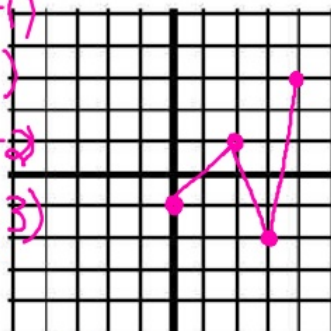
original



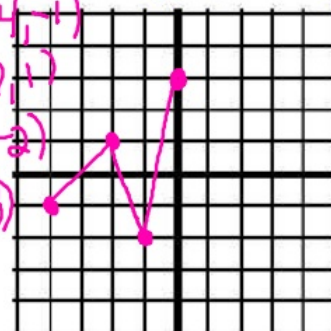
$y+2$   
 $(-2, -1) \rightarrow (-2, 1)$   
 $(0, 1) \rightarrow (0, 3)$   
 $(1, -2) \rightarrow (1, 0)$   
 $(2, 3) \rightarrow (2, 5)$

1)  $f(x) + 2$   $k=2$  up  $y\text{value} + 2$  $h=2$  right2)  $f(x-2)$  $x\text{value} + 2$ 

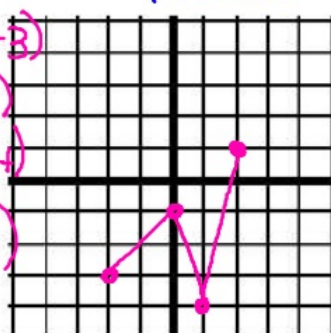
$x+2$   
 $(-2, -1) \rightarrow (0, -1)$   
 $(0, 1) \rightarrow (2, 1)$   
 $(1, -2) \rightarrow (3, -2)$   
 $(2, 3) \rightarrow (4, 3)$

 $h=-2$ 3)  $f(x+2)$  $left$   $x\text{value} - 2$ 

$x-2$   
 $(-2, -1) \rightarrow (-4, -1)$   
 $(0, 1) \rightarrow (-2, 1)$   
 $(1, -2) \rightarrow (-1, -2)$   
 $(2, 3) \rightarrow (0, 3)$

 $k=-2$ 4)  $f(x) - 2$  $down$   $y\text{value} - 2$ 

$y-2$   
 $(-2, -1) \rightarrow (-2, -3)$   
 $(0, 1) \rightarrow (0, -1)$   
 $(1, -2) \rightarrow (1, -4)$   
 $(2, 3) \rightarrow (2, 1)$

 $h=1$  right  $x\text{value} + 1$ 5)  $f(x-1) + 3$  $k=3$  up  $y\text{value} + 3$ 

$x+1$   $y+3$   
 $(-2, -1) \rightarrow (-1, 2)$   
 $(0, 1) \rightarrow (1, 4)$   
 $(1, -2) \rightarrow (2, 1)$   
 $(2, 3) \rightarrow (3, 6)$

